

give weight to the opinions of others. Serene and placid in disposition, cheerful and optimistic in temperament, he was fond of the beautiful in nature and art, even of poetry, yet philosophical and analytical and systematic by nature. As a friend, he was sympathetic, generous, steadfast, and intensely loyal.

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## NOTES ON THE BREEDING BIRDS OF PENNSYLVANIA AND NEW JERSEY.

BY RICHARD C. HARLOW.

SINCE the publication of Dr. Witmer Stone's two works: 'The Birds of Eastern Pennsylvania and New Jersey' (1894) and 'The Birds of New Jersey' (1909) the writer has done considerable field work in various parts of both states and portions of every nesting season from 1904 to 1917 have been spent in investigating the breeding habits of the resident or summer resident species. A large amount of data has naturally been collected much of which adds materially to our knowledge of the breeding range and relative abundance of the birds of Pennsylvania and New Jersey.

Some time ago Dr. Stone urged the writer to publish a summary of his observations making the pertinent remark that "the main trouble with oölogists is that they publish altogether too few of their records". It is undoubtedly true that many important nests are found every year about which nothing appears in print and the data concerning them would yield valuable information regarding the distribution and time of breeding of the species.

Acting upon Dr. Stone's suggestion the present paper has been prepared. Under each species are given the number of nests examined; the average number of eggs in a complete set, as well as the extremes, in order to show the range of variation; and the average and extreme dates for complete sets. Additional information is given under certain species and in the case of rare species

full data are given for each nest found. My field work has covered most of southern New Jersey from Mercer County and the Hackensack marshes to Cape May; and a majority of the counties of Pennsylvania, although the northwestern part of the state has not been studied as thoroughly as the other portions.

It has been thought best to consider all of the species given by Dr. Stone as possible breeders giving my data for such as I have found nesting and my reasons for regarding others as no longer breeding within our limits.

All the data presented are the result of my own studies except in a few cases where credit is given to others and in a few species which I have been unable to find breeding but whose nests others have found.

1. **Podilymbus podiceps.** PIED-BILLED GREBE.—Regular but scarce summer resident in the Hackensack marshes of northern New Jersey. Very rare summer resident in Pennsylvania where birds have been observed in the nesting season in Franklin, Sullivan, and Center Counties and the Cuckoo-like mating call heard. I have found four nests: 1. Newark, N. J.; June 6, 1908; five newly hatched young and one egg. 2. Newark, N. J.; June 6, 1908; six eggs. 3. Scotia, Center Co., Pa.; May 14, 1917; six eggs. 4. Scotia, Center Co., Pa.; July 10, 1917; six hatching eggs. Nests 3 and 4 were the product of the same pair of birds.

2. **Gavia immer.** LOON.—I know of but one instance of the Loon nesting in Pennsylvania or New Jersey, a nest found by Mr. Chas. Homan in May, 1908, near Bushkill, Monroe Co., Pa., which contained two eggs. (cf. Harlow, *Auk*, 1908, p. 471.)

3. **Larus atricilla.** LAUGHING GULL.—Regular breeder on the marshy islands on the coast of New Jersey, from Ocean Co. southward, and apparently holding its own. Data on fifty nests give: average set of eggs 3 (2-4); average date June 6 (May 25-July 15).

4. **Sterna hirundo.** COMMON TERN.—Regular breeder along the coast of New Jersey, where it is slowly increasing in numbers. I have breeding records from Ocean to Cape May Counties. Data on twenty-five nests give: average set of eggs 3 (2-4); average date, June 10.

5. **Sterna antillarum.** LEAST TERN.—After being practically exterminated on the New Jersey coast this species is beginning to reestablish itself. I have found two small colonies in Burlington County and at the time of my last visit, in 1916, they were holding their own. Data on seventeen nests give: average set of eggs, 3 (1-2); average date, June 12.

6. **Rynchops nigra.** BLACK SKIMMER.—Practically extinct in New Jersey until 1910 when two pairs were found on the coast islands of Atlantic County. Since then I have found two or three pairs present every year

and have found three nests: 1. Atlantic County, N. J.; June 15, 1915; three eggs. 2. Atlantic County, N. J.; June 15, 1915; four eggs. 3. Atlantic County, N. J.; June 17, 1916; three eggs.

[*Mergus americanus*. MERGANSER.—

[*Lophodytes cucullatus*. HOODED MERGANSER.—

[*Nettion carolinense*. GREEN-WINGED TEAL.—

[*Marila affinis*. LESSER SCAUP.—These four ducks were mentioned in Stone's work as possible breeders in Pennsylvania, but careful search has failed to discover any evidence of the fact and I feel confident that they cannot now be classed as summer residents.]

7. *Anas platyrhynchos*. MALLARD.—I have been unable to find the Mallard nesting near Williamsport or on the Loyalsock Creek where it had been formerly supposed to breed. It is however, a rare summer resident in Erie County and I have found a single nest on the New Jersey coast, in Burlington County, June 16, 1915, containing ten hatching eggs. Female and young seen several times later close at hand.

8. *Anas rubripes*. BLACK DUCK.—Rare but regular breeder along the coast of New Jersey from Ocean to Cape May Counties. In Pennsylvania, Mr. R. F. Miller and the writer saw a pair at Tinicum, Delaware County, June 18, 1913, which from their actions appeared to be breeding. I have also summer records from Erie and Fayette Counties. I have data from two nests: 1. Ocean Co., N. J.; July 3, 1914; eight eggs. 2. Ocean Co., N. J.; May 20, 1916; nine eggs.

9. *Aix sponsa*. WOOD DUCK.—Still breeds in both states although it has been almost exterminated. I have found them under circumstances which point to their breeding in Burlington, Cape May, and Cumberland Counties, N. J., and in Lancaster, Bedford and Pike Counties, Pa.

10. *Botaurus lentiginosus*. BITTERN.—In New Jersey, contrary to the published statements I have found the Bittern breeding regularly and fairly commonly on the salt marshes from Ocean to Cape May Counties as well as on the Delaware Bay shore. In Pennsylvania I have but two records; two young at Lamont, Center Co., June 17, 1909, and a pair present at Charter Oak, April–July, 1917, Huntington Co. It is apparently a very rare breeder in this state. Data on twelve nests give: average number of eggs in a set, 4 (3–5); average date, May 25 (latest July 18).

11. *Ixobrychus exilis*. LEAST BITTERN.—A rare breeder in suitable salt marshes along the New Jersey coast, becoming more common in the fresh water swamps toward the Delaware River and very common on the Hackensack meadows. In Pennsylvania it is very common in the Delaware marshes as far north as Bucks County. I have not found it breeding inland. Data recorded on forty-two nests give: average set 5 (3–6); average date, May 30 (May 22–July 12).

12. *Ardea herodias herodias*. GREAT BLUE HERON.—Still found in rapidly decreasing numbers in both states but only in the more remote places, as heronries in the settled districts are always broken up. They breed regularly but not commonly in the mountainous districts of

Pennsylvania. Data on sixteen nests give: average set, 5 (3-6); average date, April 15 (earliest April 8).

13. **Butorides virescens virescens.** GREEN HERON.—Very common breeder except in the wilder and timbered mountain districts where it is rare. Data on twenty-six nests give: average set, 5 (3-6); average date—fourteen southern New Jersey nests, May 24; eight central and northern Pennsylvania nests, June 1.

14. **Nycticorax nycticorax nævius.** BLACK-CROWNED NIGHT HERON.—Common summer resident in southern New Jersey and southeastern Pennsylvania north to Belvidere and Northampton County. I have never found it in the mountains and but rarely west of the Alleghanies. Data on sixty nests give: average set, 4 (3-6); average date April 25 (latest, June 6).

15. **Rallus elegans.** KING RAIL.—Confined to the Delaware valley from Bridesburg to Tinicum where it is a rather scarce breeder and probably south to Delaware Bay. Data on five nests give, average set 9 or 10 (6-13); average date, June 5 (earliest, May 30).

16. **Rallus crepitans.** CLAPPER RAIL.—Very abundant on the New Jersey salt marshes becoming scarcer from Ocean County northward. Data on twelve nests give: average set, 10 or 11 (6-15); average date, May 30 (May 20-July 15).

17. **Rallus virginianus** VIRGINIA RAIL.—A common but local breeder in marshes throughout Pennsylvania except in the higher mountain districts and west of the Alleghanies where I have no records. It is especially plentiful in the level valleys of central Pennsylvania.

In New Jersey I have found it nesting on the salt marshes in Ocean and Burlington Counties, though not commonly, and also along the Delaware. Data on seventeen nests give: average set on the salt marshes, 7 (6-8), in central Pennsylvania 10 (9-14); average date, salt marshes, June 7, central Pennsylvania May 16 (May 10-June 27). I am at a loss to account for the early nesting of the birds from central Pennsylvania. That the nests from the salt marshes are not abnormally late is shown by the records of ten others from the Delaware valley which average June 5.

18. **Porzana carolina.** SORA.—A rare breeder in the Delaware valley at Bridesburg but abundant in suitable marshes in central Pennsylvania where I have found it nesting in Center, Mifflin, Clearfield, Huntington, and Synder Counties. Data on thirty-two nests from the latter district give: average set, 10 (8-15); average date, May 17 (May 10-June 11).

19. **Creciscus jamaicensis.** BLACK RAIL.—Contrary to all precedent the writer has found this rail a common though local breeder in suitable salt marshes along the New Jersey coast in Ocean, Burlington and Atlantic Counties, as well as on the edges of the coast islands. Its secretive habits and the fact that it is very difficult to flush probably account for the rarity of the eggs in collections. The writer has personally found eighteen nests and has examined a number of others. Data recorded on

twenty-four nests give the following: average set 7 (6-9), one set of 13; average date June 14 (June 6-July 23).

20. **Gallinula galeata.** FLORIDA GALLINULE.—Breeds regularly along the Delaware from Bridesburg to Tinicum on both sides of the river, also in the Hackensack marshes. Data on twenty-six nests give: average set, 10 (6-14); average date June 1 (May 22-July 12).

21. **Fulica americana.** COOT.—Seen on June 6, 1908, in the Hackensack marshes where it has been found nesting by others (Auk, 1907, p. 436.) I can find no evidence of its nesting in Pennsylvania at the present time.

22. **Philohela minor.** WOODCOCK.—A scarce but regular breeder in southern New Jersey and still found in suitable localities in the mountainous districts of Pennsylvania, especially in Huntington County. Very scarce in thickly populated sections of both states. I have data on but four nests: 1. Rio Grande, Cape May Co., New Jersey, May 9, 1908; four eggs hatching. 2. Barnegat, Ocean Co., N. J., April 20, 1914, four eggs. 3. Charter Oak, Huntington Co., Pa., April 8, 1917, four eggs. 4. Charter Oak, Huntington Co., Pa., April 14, 1917, four eggs.

[**Gallinago delicata.** WILSON'S SNIPE.—I have been unable to obtain any evidence of the breeding of this species in either Pennsylvania or New Jersey, though it was formerly supposed to be a summer resident in the northern parts of both states.]

[**Totanus melanoleucus.** GREATER YELLOWLEGS.—I have seen pairs of this bird performing their mating antics on the coast marshes of New Jersey as late as May 25 and they have circled about me calling constantly. I have also noted them in Ocean County as early as July 5 — migrating birds, of course, in both cases. May not instances such as these have prompted Ord's statement that they bred in New Jersey?]

23. **Helodromas solitarius solitarius.** SOLITARY SANDPIPER.—A very rare breeder in the higher mountainous districts. I have only one breeding record, an old bird with young, at La Anna, Pike County, Pa. (see Oölogist, March, 1906).

24. **Bartramia longicauda.** UPLAND PLOVER.—Rare but regular breeding bird in the open farming country of southern Pennsylvania. I have noted them in summer in Bucks, Chester, Lancaster, Dauphin, Adams, Cumberland, Northumberland, Mifflin, Snyder, Center, Indiana, and Greene Counties. Three pairs bred within eight miles of State College, Center Co. in 1917. I have found two nests: 1. George School, Bucks Co., Pa., May 18, 1908; four eggs. 2. Newtown, Bucks Co., Pa., May 24, 1910; four eggs.

25. **Actitis macularia.** SPOTTED SANDPIPER.—Breeds abundantly throughout both states. Data on sixteen nests give: average set 4; average date, May 28 (May 16-June 18).

26. **Oxyechus vociferus.** KILLDEER.—Common through both states as far north as Center Co., Pennsylvania, rare in the northern counties and absent from the higher mountains. Data on eighteen nests give: average set 4; average date, May 1 (April 20-June 18).

27. *Ægialitis meloda*. PIPING PLOVER.—A set of four eggs in my collection was taken at Beach Haven, N. J., June 8, 1886 (recorded by Stone, 'Birds of N. J.', p. 146). I have no more recent record.

28. *Colinus virginianus virginianus*. BOB-WHITE.—Formerly breeding plentifully in the lower parts of both states, and rarely even as far north as Warren and Pike Counties, Pa. Now very much reduced in numbers and locally distributed, more abundant in southern New Jersey than elsewhere. Data on three New Jersey nests are as follow: 1. Ocean Co., N. J., July 6, 1914; seventeen eggs. 2. Ocean Co., N. J., June 14, 1915; nineteen eggs. 3. Cape May Co., N. J., May 27, 1916; sixteen eggs.

29. *Bonasa umbellus umbellus*. RUFFED GROUSE.—Common in the mountainous districts of Pennsylvania, breeding from Warren to Pike Counties on the north, and from Franklin to Bedford Counties on the south. Rare in the well populated sections. In southern New Jersey it occurs rather uncommonly but I have found it nesting in Cape May County. Data on seventeen Pennsylvania nests give: average set, 10 or 11 (6-15); average date, May 4 (April 26-June 12).

30. *Meleagris gallopavo silvestris*. WILD TURKEY.—Scarce but regular breeder in the wilder parts of south central Pennsylvania, from Center, Clearfield and Lycoming Counties to Somerset and Franklin. I have found them fairly common in Stone Valley, Huntingdon County. Data on three nests are appended: 1. Vail, Blair Co., Pa., May 17, 1912; six eggs. 2. Greenwood Furnace, Huntingdon Co., Pa., May 20, 1915; twelve eggs. 3. Bear Meadows, Center Co., Pa., June 22, 1916; twelve eggs.

[*Ectopistes migratorius*. WILD PIGEON.—Inquiries in Pike and Wayne Counties, Pa., have brought forth the fact that the last breeding in the beech woods there occurred in the late seventies.]

31. *Zenaidura macroura carolinensis*. MOURNING DOVE.—Very common over the greater part of both states but much rarer in the northern mountainous districts of Pennsylvania. Data on thirty-one nests give: average set, 2; average date — for first sets, April 15 (earliest, April 4); for second sets, June 10 (latest, August 4).

32. *Cathartes aura septentrionalis*. TURKEY VULTURE.—Very common in southern New Jersey as well as in Delaware and Chester Counties, Pennsylvania, and less so in Montgomery. Plentiful in the Susquehanna valley as far north as Dauphin and Perry Counties and breeding regularly but less abundantly to Northumberland and Center Counties. I have not found it west of the Alleghenies. Data on nine nests give: average set, 2; average date, May 1 (April 20-May 26).

33. *Circus hudsonius*. MARSH HAWK.—Regular and fairly common breeder on the salt marshes of the New Jersey coast, where I have found twelve nests in Ocean, Burlington and Atlantic Counties and have observed the birds in summer from Cape May to Newark. It nests rarely in central Pennsylvania, in Center and Huntingdon Counties, and more

regularly in Erie County. Data on twelve New Jersey nests give: average set, 5 (4-7); average date, May 25 (May 14-July 9).

34. **Accipiter velox.** SHARP-SHINNED HAWK.—Rapidly decreasing in numbers and now one of the rarest breeding hawks in both states. A set of eggs in my collection taken at Clementon, N. J., on June 1, 1915, is my nearest record to Philadelphia as well as the most recent one for this district. I have noticed this hawk as a rare summer resident in Berks, Monroe, Pike, Wayne, Center, Huntington, Mifflin, Lycoming, and Alleghany Counties. Data on nine nests give: average set, 5 (3-6); average date, May 25 (May 14-June 29).

35. **Accipiter cooperi.** COOPER'S HAWK.—A breeding bird throughout both states, becoming much rarer in the northern, mountainous parts of Pennsylvania. Data on twenty-four nests give: average set, 5 (3-6); average date, May 5 (April 23-June 10).

36. **Astur atricapillus atricapillus.** GOSHAWK.—A very rare breeder in the few heavily timbered, most boreal, mountain districts of Pennsylvania. Apparently does not breed on the Pocono plateau. A set of two eggs taken in Warren County, Pa., on April 3, 1910, in my collection.

37. **Buteo borealis borealis.** RED-TAILED HAWK.—Breeds rarely in southeastern Pennsylvania, more commonly in the southern tier of counties to the westward and very commonly in the southwestern counties, Greene and Washington, as well as in Warren and Indiana. I have been unable to find it nesting in central or northeastern Pennsylvania or in southern New Jersey. Stone, in his 'Birds of New Jersey' gives it as a common resident but if there is a definite record of its nesting in the southern counties I have failed to find it. Data on nine nests give: average set, 2 (3); average date April 6 (March 24-April 20).

38. **Buteo lineatus lineatus.** RED-SHOULDERED HAWK.—In New Jersey it is a scarce but regular summer resident in the southern counties becoming very common in the northern half of the state. In Pennsylvania it is a rare breeder in the southeastern portion and in Greene County in the southwest; more common from Alleghany county north and quite common in the mountains from Warren to Monroe, avoiding the central counties but becoming the common breeding hawk of the Pocono plateau. Data on nineteen nests give: average set, 3 (2-4); average date, April 23 (April 15-May 25).

39. **Buteo platypterus.** BROAD-WINGED HAWK.—Scarce but regular summer resident in southern New Jersey where I have found them under circumstances that left no doubt but that they were breeding, in all the southern counties. In Pennsylvania it is fairly well distributed in the breeding season being most plentiful in Chester, Delaware and the central counties, and least common in the most northern mountainous counties. I have found its nests north to Pike County in the east and from Alleghany to Warren in the west. Data on twelve nests give: average set, 2-3 (4); average date, May 15 (May 7-June 13).

40. **Haliaeetus leucocephalus leucocephalus.** BALD EAGLE.— Almost if not quite extinct as a breeding bird in New Jersey, though formerly nesting regularly in Salem, Cumberland, Cape May, and Burlington Counties. In Pennsylvania I know of an occupied nest in Erie County and a pair may still nest along the Susquehanna, in Lancaster County, though the former well known eyries of that locality have not been occupied during the last two years. Probably a pair or two breed in the wild lake region of Pike, Wayne and Monroe Counties, where I still see them frequently. I have known of Eagles nesting at the following places in Pennsylvania in the last ten years, all of which are now deserted owing to the birds having been shot, or the nest trees falling down, viz: Washington Boro and Peach Bottom, Lancaster Co., Milford, Pike Co., and Towanda Bradford Co. Data on three nests follow: 1. Towanda, Bradford Co., Pa., Feb. 28, 1914; two eggs. 2. Washington Boro, Lancaster Co., Pa., March 2, 1915; two eggs. 3. Erie Co., Pa., May 15, 1915; two large young.

41. **Falco peregrinus anatum.** DUCK HAWK.— This magnificent falcon still breeds at a number of places in Pennsylvania. I have known of eight pairs nesting in the state within the past five years — along the Delaware from the Nockamixon cliffs to Monroe County and along the Susquehanna from Lancaster to Bradford Counties, as well as near the cities of Williamsport and Scranton. Data on seven nests give: average set, 4 (3-5); average date, April 15 (April 8-April 29).

42. **Falco sparverius sparverius.** SPARROW HAWK. — Breeds throughout New Jersey though not commonly in the southern counties or near the coast. Very common in the southern half of Pennsylvania becoming much scarcer in the northern and wilder mountainous sections. It is a rare breeder on the Pocono plateau, in my experience. Data on thirty-six nests give: average set, 5 (3-6); average date April 28 (April 13-June 4).

43. **Pandion haliaëtus carolinensis.** OSPREY.— Nests commonly along the New Jersey coast, being most plentiful in Cape May and Cumberland Counties and nesting up the Bay shore as far as Salem County. In Pennsylvania it is a rare breeder on the lakes of the northeastern counties and at Foxburg, Clarion County. Data on seventy-five nests give: average set, 3 (2-4); average date, May 20 (May 7-June 10).

44. **Aluco pratincola.** BARN OWL.— I have found the Barn Owl only in southeastern Pennsylvania — in Delaware, Chester, Montgomery and Cumberland Counties. Data on eight nests give: average set, 6 or 7 (4-8); average date, April 1 (February 28-June 8).

45. **Asio wilsonianus.** LONG-EARED OWL.— This owl in my experience is a very rare breeder in both states. I have only one record, a set of three eggs found in Berks County, Pa.

46. **Asio flammeus.** SHORT-EARED OWL.— A very rare summer resident on the salt marshes of the New Jersey coast, where I have seen them and found their pellets in the summer months in Ocean and Burling-

ton Counties. I have found but one nest — June 17, 1915, on an island in Barnegat Bay, containing five half fledged young.

47. *Strix varia varia*. BARRED OWL.— Apparently a regular though scarce breeding bird throughout New Jersey. I have seen them in April or May, in Cape May, Cumberland, Ocean, Atlantic, Burlington and Salem Counties. In Pennsylvania I have found it only in the wilder mountainous sections, from Warren to Pike Counties and south to Franklin. I have found only one nest — June 1, 1912, Warren Co., Pa. containing three eggs. This date seems entirely too late to be normal.

48. *Cryptoglaux acadica acadica*. SAW-WHET OWL.— I have but one summer record for this species, a bird seen in northern Huntingdon County, Pa., on May 26, 1913, and as this individual was blind in one eye it was possibly not a breeding bird. Young birds have however been taken in the mountains by others, as is well known.

49. *Otus asio asio*. SCREECH OWL.— Very common in both states but becoming much rarer in the mountainous districts and not found at all in the primæval forests. Data recorded on twenty-one nests give: average set 4 (3-6); average date, April 10 (April 1-May 4).

50. *Bubo virginianus virginianus*. GREAT HORNED OWL.— Rare resident in New Jersey confined mainly to the wilder sections. I have found it several times in Salem County during the nesting season. In Pennsylvania it is generally distributed, everywhere scarce, and becoming exterminated in all but the wilder sections. Three nests were found at Waynesburg, Green Co., Pa., 1. February 24, 1916, 2 eggs; 2. March 27, 1914, three half-fledged young; 3. March 28, 1914, two half-fledged young. Another nest March 12, 1914, at Charter Oak, Huntington Co., Pa., contained two newly hatched young.

51. *Coccyzus americanus americanus*. YELLOW-BILLED CUCKOO.— A common breeding bird in the lower ground of both states becoming less plentiful towards the mountains. I have not found it in the boreal parts of Pennsylvania. Data on twenty-four nests give: average set, 3 (2-5); average date, June 15 (May 24-August 15).

52. *Coccyzus erythrophthalmus*. BLACK-BILLED CUCKOO.— Replaces the former species in the northern and mountainous parts of both states, and a rare breeding bird in the southern counties, especially east of the mountains. Data on nine nests give: average set, 3 (2-7); average date June 10 (April 29-June 23).

53. *Ceryle alcyon alcyon*. BELTED KINGFISHER.— Generally distributed throughout both states all the way from the coast of New Jersey to the tops of the Alleghanies, in suitable locations. Data on twenty-eight nests give: average set, 6 or 7 (5-8); average date, May 10 (April 29-June 23).

54. *Dryobates villosus villosus*. HAIRY WOODPECKER.— A regular breeding bird over practically the entire area of both states. Particularly common in Greene County in the southwestern corner of Pennsylvania and on the Pocono plateau. Data on sixteen nests give: average set, 4 (3-5); average date, April 25 (April 12-May 14).

55. **Dryobates pubescens medianus.** DOWNY WOODPECKER.— Very common throughout both states except in the wilder mountainous sections where it is much less plentiful. Data on thirty-two nests give: average set, 5 (3-6); average date, May 14 (May 1-June 2).

56. **Sphyrapicus varius varius.** YELLOW-BELLIED SAPSUCKER.— I have found this species nowhere a common summer resident of Pennsylvania and confined to the highest and most boreal parts of Warren, Pike, Wayne and Monroe Counties. I question the statement in Warren's 'Birds of Pennsylvania,' that it breeds in Cumberland County, as his informant probably confused this with one of the preceding species, all three being confused in the popular mind. I found a nest at Pocono Lake, Monroe County on June 17, 1908, but with the set not completed, and another at South Sterling, Wayne County, with a set of four eggs, on June 11, 1917.

57. **Phlœotous pileatus abieticola.** NORTHERN PILEATED WOODPECKER.— Still breeds regularly though locally in the wilder mountainous sections of Pennsylvania, from Monroe, Wayne and Pike Counties to Warren and south to Huntington; also in Greene County, along the West Virginia line. Steadily decreasing in numbers. I have found five nests: 1. Shingletown, Center Co., Pa., May 2, 1912; two eggs. 2. Monroe Furnace, Huntington Co., Pa., May 8, 1913; four eggs. 3. LaAnna, Pike Co., Pa., May 18, 1913; four eggs. 4. Mooresville, Huntington Co., Pa., May, 15, 1914; four eggs. 5. Charter Oak, Huntington Co. Pa., May 11, 1917; four eggs.

58. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.— Scarce and very local in New Jersey and very rare in the southern half of the state, where I have seen them in Camden, and Burlington Counties and once in Gloucester. In Pennsylvania it is locally distributed breeding in the east from Chester and Delaware Counties to Pike. It is rare in the northern and mountainous regions being there confined to burnt-over districts or to water killed trees in ponds. It is resident and very common in Center County but west of the Alleghanies I have found it only in Warren County. Data on twenty-eight nests give: average set, 5 (3-6); average date, June 3 (May 24-July 11).

59. **Centurus carolinus.** RED-BELLIED WOODPECKER.— A scarce but regular breeder in Washington and Greene Counties in the southwest corner of Pennsylvania. A set of four eggs in my collection was taken in Green County on May 3, 1907.

60. **Colaptes auratus luteus.** NORTHERN FLICKER.— Breeds abundantly throughout both states, becoming scarcer in the wilder mountainous districts, where however it nests in slashings miles from civilization. Data on one hundred and sixteen nests give: average set, 7 (5-13); average date, May 12 (April 24-June 16).

61. **Antrostomus vociferus vociferus.** WHIP-POOR-WILL.— Common breeder in less settled sections throughout New Jersey, occurring in the greatest numbers in the swamps of Cape May, Atlantic, Burlington and Cumberland Counties. In Pennsylvania I have found it commonly

throughout the mountains and also in Greene County. Data on seven nests give: average set, 2; average date, May 28 (May 14, Pike Co., Pa.—June 20, Greene Co.).

62. *Chordeiles virginianus virginianus*. NIGHTHAWK.—Locally distributed throughout both states. Most common in parts of Berks County, Pennsylvania. Nests regularly on the gravel rooves of houses in Pittsburgh. Data on eight nests give: average set, 2; average date, June 1 (May 24—June 29).

63. *Chætura pelagica*. CHIMNEY SWIFT.—Abundant breeder throughout both states. In the wilder regions it still sometimes nests in hollow stumps and in Pike and Monroe Counties, Pa., I have found three nests in dark barns. Data on twelve nests give: average set 4 (3–5); average date, June 6 (May 24—July 15).

64. *Archilochus colubris*. RUBY-THROATED HUMMINGBIRD.—Locally distributed; apparently most abundant in southern New Jersey, and on the Pocono plateau and in Greene County, Pennsylvania. Data on seventeen nests give: average set, 2; average date,—six nests southern New Jersey, May 28, four nests southern Penna., June 1, seven nests, northern Penna., June 7.

65. *Tyrannus tyrannus*. KINGBIRD.—Common and generally distributed. Data on thirty-five nests give: average set, 3 (4); average date — 12 southern New Jersey nests, May 30, fourteen northern Penna. nests, June 7.

66. *Myiarchus crinitus*. GREAT CRESTED FLYCATCHER.—Common though somewhat locally distributed and absent or very local in the mountains. Data on twenty-six nests give: average set 5 (4–6); average date, June 5 (May 26—June 24).

67. *Sayornis phœbe*. PHŒBE.—Abundant over the greater part of both states but rather scarce in southern New Jersey especially in Cape May County. Data on one hundred and seventy nests: average set, 5 (3–6); average date — first sets April 25 (earliest April 12); second sets, June 8 (latest July 18).

68. *Nuttallornis borealis*. OLIVE-SIDED FLYCATCHER.—A very rare summer resident in the boreal regions of Pennsylvania. I have found it only in Pike, Wayne, Monroe and Warren Counties. A set of two eggs in my collection was taken at Warren, June 24, 1904.

69. *Myiochanes virens*. WOOD PEWEE.—Very common and generally distributed. Data on fourteen nests give: average set, 2 or 3; average date, June 10 (June 3—August 1).

70. *Empidonax flaviventris*. YELLOW-BELLIED FLYCATCHER.—I have one summer record of this species for Warren County, Pa., and two for Monroe. It has been found nesting by others (see Auk, 1916, p. 200).

71. *Empidonax trailli alnorum*. ALDER FLYCATCHER.—I have found the Alder Flycatcher in summer only at Cresco and Pocono Lake, Monroe County and Gouldsboro, Wayne County, Pennsylvania. (For record of nests see Auk, 1916, p. 199).

72. **Empidonax virescens.** ACADIAN FLYCATCHER.—Breeds over the low ground of both states, and ranges up the river valleys, rarely into the mountains. I have found it in Center County nesting in the same ravine with such species as the Canada Warbler and Solitary Vireo. Scarce in Cape May Co., N. J. Data on twenty-six nests give: average set, 3 (2); average date, June 6 (May 30–July 16).

73. **Empidonax minimus.** LEAST FLYCATCHER.—Breeds commonly over the northern half of New Jersey and the mountainous parts of Pennsylvania south to Berks and Center Counties and rarely to Montgomery. Data on twenty-one nests give: average set, 4 (3); average date May 30 (May 25–June 27).

(To be concluded.)

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## UNCOLORED PRINTS FROM HAVELL'S ENGRAVINGS OF AUDUBON'S 'BIRDS OF AMERICA'.

BY HARRY HARRIS.

*Plates II and III.*

EIGHT uncolored prints of Audubon's folio plates have lately come into the writer's possession, and their examination has led to a closer study of the work of the engraver. A careful comparison of the prints with the corresponding published issues has brought out a few points which may prove of interest, especially as the comparatively scant reference to Robert Havell Jr. found in the literature of American Ornithology perhaps indicates that complete recognition has not been given this master engraver for his part in immortalizing the genius of Audubon.

Mr. George Alfred Williams of Summit, N. J., has lately said,<sup>1</sup> in a very illuminating review of Havell's career, that to the genius of this man is due much of the extraordinary artistic success which

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<sup>1</sup> Williams, George Alfred. Robert Havell, Junior, Engraver of Audubon's "The Birds of America." *The Print-Collector's Quarterly*. October, 1916. Houghton, Mifflin Co., Boston.